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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C.

In the Matter of

RULEMAKING TO AMEND PARTS 1, 2, 21, AND 25 OF THE COMMISSION'S RULES TO REDESIGNATE THE 27.5-29.5 GHZ FREQUENCY BAND, TO REALLOCATE THE 29.5-30.0 GHZ FREQUENCY BAND, TO ESTABLISH RULES AND POLICIES FOR LOCAL MULTIPOINT DISTRIBUTION SERVICE AND FOR FIXED SATELLITE SERVICES

CC Docket No. 92-297

PETITION FOR CLARIFICATION AND/OR RECONSIDERATION

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SUMMARY OF CONTENTS

Teledesic Corporation petitions the Commission to clarify, or in the alternative, to reconsider, its recently promulgated *Third Report and Order* adopting service rules for the Ka band. Teledesic, which holds a license to construct, launch, and operate a non-geostationary-orbit ("NGSO") satellite system providing fixed satellite service ("FSS") in the Ka band, fears that certain ambiguous statements in the *Third Report and Order* threaten the successful and efficient development of the band. In particular, Teledesic petitions for clarification of the portion of the *Third Report and Order* addressing co-frequency sharing by multiple NGSO FSS systems.

Three points require clarification. First, the Commission should reiterate that it has not endorsed any specific technique for NGSO systems to operate co-frequency. The Commission lacks any evidentiary basis for concluding that systems can share when their orbits are not coordinated. Moreover, there is some reason to believe that use of non-coordinated orbits will actually *limit* NGSO FSS entry and thereby *reduce* competition. The Commission should clarify that it has not yet found sharing using non-coordinated orbits to be feasible.

Second, the Commission should clarify that it will not subdivide the 500 MHz presently allocated for use by NGSO FSS systems. As the Commission has previously recognized, there is no reason to believe that an NGSO FSS system can be economically viable with less than 500 MHz. Moreover, technical studies included in the record demonstrate that NGSO FSS systems *are* able to share the spectrum using coordinated orbits, making multiple entry possible without spectrum division. The Commission should make clear that it does not regard band splitting as a likely or favored approach.

Finally, there is language in the *Third Report and Order* implying that future NGSO FSS applicants will not be charged with the responsibility of avoiding harmful interference into previously licensed systems. Years of Commission precedent, sound policy, and the treaty obligations of the United States mandate that this approach be rejected; licensees cannot be forced to significantly alter their systems to accommodate incompatible proposals by new applicants. In the interest of promoting NGSO FSS entry, the Commission should forcefully clarify that it will not depart from its time-honored rule that applicants must protect previously licensed systems, not the other way around.

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PETITION FOR CLARIFICATION AND/OR RECONSIDERATION

Teledesic Corporation hereby petitions the Commission for clarification of its recently promulgated *Third Report and Order*[1] insofar as that order discusses co-frequency operation by non-geostationary-orbit ("NGSO") satellite systems providing fixed satellite service ("FSS") in the 28.6-29.1 GHz and 18.8-19.3 GHz bands. The *Third Report and Order* states that the Commission did not intend to "mandate any specific sharing principles,"[2] and indeed none of the amendments to Part 25 adopted by that order address co-frequency sharing among multiple NGSO FSS systems. Nonetheless, the language could be misread to suggest otherwise.

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1 FCC 97-378 (rel. Oct. 15, 1997) ("*Third Report and Order*").

2 *Third Report and Order* at ¶ 38.

Teledesic, as an NGSO FSS licensee, urges the Commission to clarify certain statements on NGSO FSS sharing in order to narrow the issues that are likely to arise as the Commission explores the appropriate methods for co-frequency sharing among multiple NGSO FSS systems. In the alternative, the Commission should reconsider those statements in order to conform them to existing law and sound policy.

For almost four years, the Commission has consistently promoted the development of NGSO FSS services in the Ka band. The Commission developed a band plan that designated 500 MHz in each direction for primary NGSO FSS operations, and at the 1995 World Radiocommunication Conference that element of the band plan was endorsed by the rest of the world. The approach set forth in Resolution 118 of WRC-95, as recently reaffirmed at WRC-97, permits NGSO FSS systems to operate in the 28.6-29.1 GHz and 18.8-19.3 GHz frequencies (the "NGSO FSS Priority Bands") without the burden of protecting GSO operations — a burden that is imposed on NGSO systems in other FSS bands. This action, made possible by strong U.S. leadership and widespread international support, paves the way for a new generation of network-quality satellite services that will bring advanced communications technologies to virtually all of the Earth's inhabitants.

In paragraphs 35-38 of the *Third Report and Order*, the Commission discusses two very different techniques for co-frequency sharing among multiple NGSO FSS systems — "homogeneous" techniques, which enable sharing through the use of coordinated orbits, and "non-homogeneous" techniques, which attempt to make sharing work using non-coordinated

orbits.[3] Although the Commission concludes that it does not yet have sufficient information to "mandate any sharing principles or mitigation techniques," it also implies that co-frequency sharing among multiple NGSO FSS systems is known to be feasible at this time regardless of whether orbits are coordinated or non-coordinated. In addition, the Commission asserts that "further division of the spectrum, which would result in a reduction of each system's capacity, is also a feasible alternative if sharing proves to be unacceptable to any particular NGSO FSS system."[4] The Commission also indicates that "all NGSO FSS licensees [will] bear some portion of the technical and operational constraints necessary to accommodate multiple 'non homogeneous' NGSO FSS systems."

These statements require clarification in the following respects:

- The Commission disclaims endorsing any particular sharing technique, but its determination that all licensees shall share the burden of accommodating multiple "non-homogeneous" systems could be read to imply that the Commission believes that use of

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[3] Many observers, including Teledesic, have used the term "homogeneous" to refer to NGSO FSS systems that can share by interleaving their orbital planes or their satellites, with all other systems described as "non-homogeneous" or "heterogeneous." These terms have caused some confusion because "homogeneous" can be interpreted to refer only to systems that are identical, even though the systems need not be identical for this type of sharing to occur. *Cf.* Application of Teledesic Corporation for Minor Modification of License to Construct, Launch, and Operate a Non-Geostationary Fixed Satellite Service System, FCC File No. 195-SAT-ML-97 (filed Sept. 26, 1997), at 4 n.8. It is more precise to refer to systems with "coordinated orbits" and systems with "non-coordinated orbits," and those are the terms that will be used in this Petition.

[4] *Third Report and Order* at ¶ 37.

non-coordinated orbits has been proven feasible. However, there is no evidence in the record to support such a finding. The Commission should reiterate that it did not endorse any specific co-frequency sharing scenario, and should clarify that its discussion of "non-homogeneous sharing" does not constitute a finding that sharing schemes using non-coordinated orbits are feasible or are preferable to the use of coordinated orbits.

- Although the Commission cites international studies demonstrating that sharing is possible through use of coordinated orbits, it nonetheless states "that further division of the [NGSO FSS Priority Bands], which would result in a reduction of each system's capacity, is also a feasible alternative if sharing proves to be unacceptable to any particular NGSO FSS system."[5] This statement conflicts not only with the cited international studies demonstrating that coordinated orbits are a viable sharing technique, but also with the Commission's prior finding that 500 MHz in each direction is the minimum bandwidth required for an NGSO FSS system. A change of course on this issue would require reliance on and analysis of contrary record evidence. There is currently no record evidence that could support a finding that an NGSO FSS system is viable with less than 500 MHz in each direction.
- The discussion of "burden sharing" could be misread to imply that existing licensees will not be given priority over mere applicants in resolving interference situations. Requiring licensees to significantly alter their systems to remedy sharing deficiencies in later-filed

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[5] *Id.* at ¶ 38.

applications would contradict established legal principles as well as common sense and sound public policy. As the Commission has consistently held, applicants must avoid interference into previously authorized users of the spectrum, not the other way around.

Teledesic strongly supports Commission efforts to make NGSO FSS services available to the public as widely and as quickly as possible, as well as the Commission's efforts to pursue this goal by facilitating multiple entry by competing providers. Furthermore, as a licensee, Teledesic also recognizes its responsibility to coordinate with later entrants — to share information and, if necessary and possible, to make minor adjustments to its system to accommodate other operators, to the extent this can be done without significantly altering Teledesic's service quality, system cost, or deployment schedule. However, the ambiguities in the *Third Report and Order* work against this multiple entry policy by undermining the stability and certainty that is necessary for timely deployment of *any* system. The Commission should therefore act quickly to eliminate any uncertainty that could diminish the potential for the successful deployment of NGSO FSS systems.

I
THE COMMISSION SHOULD CLARIFY THAT IT HAS NOT YET ADOPTED ANY SPECIFIC RULES ON NGSO/NGSO SHARING

Understandably, the Commission has expressed a policy preference for entry by multiple NGSO FSS systems operating in the Ka band. Multiple entry is important not only for the

competition that will result,[6] but also because multiple systems, if they are compatible, can enhance spectrum efficiency and maximize the amount of service the public receives from a given portion of the radio spectrum. A single NGSO FSS system, entailing dozens or hundreds of satellites, is itself an intensive, efficient use of spectrum, and this efficiency is magnified to the extent that multiple systems can share without significantly constraining their operations. Studies have shown, for example, that "several" NGSO FSS systems can operate in the NGSO FSS Priority Bands by using orbits coordinated around the Teledesic Network.[7]

Unfortunately, however, the scarcity of spectrum prevents the FCC from licensing new entrants *ad infinitum*. Since the earliest days of spectrum regulation, the Commission has balanced the desire to promote competition with the need to prevent interference. Applying that time-honored approach to this proceeding, the Commission should strive to facilitate entry by multiple operators without endorsing untested sharing methods that would cause harmful interference or lower the quality of service of previously licensed operations.

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[6] Note that competition can come from NGSO FSS systems licensed in other bands, as well as from GSO FSS systems, terrestrial microwave systems, and terrestrial fiber networks. Indeed, it is not uncommon for the Commission to rely on competition from other services or bands in situations where competitors can use different frequencies for the same purpose, such as cellular radio, the Local Multipoint Distribution Service, or the bloc of "Big LEO" frequencies set aside for the exclusive use of Motorola's Iridium system. Strictly speaking, then, multiple entry *in the NGSO FSS Priority Bands* is more a matter of maximizing spectrum efficiency than of economic competition.

[7] CPM-97 Report § 4.4.1.1.1 (adopted May 16, 1997 at the ITU's Conference Preparatory Meeting).

In the *Third Report and Order*, the Commission acknowledged that it did not yet have enough information to endorse any sharing technique. Indeed, until now, there has been no reason to address any specific sharing scenario. The first processing round attracted only one applicant, and that applicant — Teledesic — is still the only licensee in the band. [8] Furthermore, the compatibility of any particular system proposal with the operations already licensed in the band is an extremely complex technical question that should generally be answered in the context of individual licensing proceedings. It is therefore understandable that the Commission would decline to adopt any particular sharing technique at this time.

Teledesic is concerned, however, that some statements in the *Third Report and Order* could be misinterpreted to imply some binding conclusion on sharing principles. In particular, the Order states that all NGSO FSS licensees must "bear some portion of the technical and operational constraints necessary to accommodate multiple 'non-homogeneous' NGSO FSS systems."[9] This sentence implies that multiple NGSO FSS systems can share using non-coordinated orbits if all NGSO FSS licensees are willing to "bear some portion of the technical and operational constraints," even though the feasibility of non-coordinated-orbit sharing is still unproven. If, as Teledesic believes, the Commission did not mean to vouch for the feasibility of non-coordinated orbits, the Commission should clarify this language. NGSO FSS operators and

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[8] A second processing round is currently open, with one application already on file. *Application of Motorola Global Communications, Inc.*, FCC File No. 79-SAT-P/LA-97 (filed June 13, 1997. Additional applications may be accepted for contemporaneous consideration until December 22, 1997.

[9] *Third Report and Order*, at ¶ 38.

applicants should be made aware that the Commission has not endorsed or rejected any sharing technique for facilitating entry of multiple NGSO FSS systems — especially the untested mitigation techniques necessitated by non-coordinated orbits.

If, however, the Commission *intended* to endorse non-coordinated orbits in the *Third Report and Order,* it should reconsider. The Commission has neither the record nor a rationale for endorsing sharing using non-coordinated orbits at this time.[10] Decisions made by administrative agencies may not be arbitrary and capricious; they must be based on substantial evidence in the record.[11] The Communications Act requires that the Commission's licensing policy also serve the "public convenience, interest or necessity."[12] Therefore, the Commission's articulated reasoning must connect the facts in the record to the public interest. If non-

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[10] If the Commission *intended* to adopt or endorse sharing using non-coordinated sharing, Teledesic petitions that the Commission reconsider its decision.

[11] 5 U.S.C. § 706. *See also City of Brookings v. Municipal Telephone Co.,* 822 F.2d 1153, 1165 (D.C. Cir. 1987). "[T]he agency must examine the relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made." *Motor Vehicle Mfrs. Ass'n. v. State Farm Mutual Automobile Ins. Co.*, 463 U.S. 29, 43 (1983), *quoting Burlington Truck Lines v. United States*, 371 U.S. 156, 168 (1962). Moreover

> it is not enough that a rule might be rational; the statement accompanying its promulgation must show that it is rational -- must demonstrate that a reasonable person upon consideration of all points urged pro and con the rule would conclude that it was a reasonable response to a problem that the agency was charged with solving.

Schurz Communications v. F.C.C., 982 F.2d 1043, 1049 (7th Cir. 1992) (Posner, J.).

[12] 47 U.S.C. § 303.

coordinated sharing is to be adopted as a means of promoting multiple entry, the Commission must point to evidence in the record demonstrating that the technique will work, and that its adoption will further the public convenience, interest, or necessity.

The Commission cannot point to substantial evidence in the record demonstrating that sharing using non-coordinated orbits is feasible. The evidence in the record on NGSO/NGSO sharing comes from the CPM-97 Report Section 4.4.1.[13] That report summarizes technical studies concluding that co-frequency operation by "several" NGSO FSS systems using coordinated near-polar orbits "appears to be feasible, with the application of mitigation techniques at high latitudes."[14] No similar results are reported for NGSO FSS systems using non-coordinated orbits; the CPM Report states merely that non-coordinated sharing "is being investigated." Using this evidence, the Commission could endorse sharing using *coordinated* orbits, but it would be unable to do the same for sharing using non-coordinated orbits. The fact that the technique is "being investigated" obviously does not justify endorsing it, given all the ramifications sharing techniques have on the potential for efficient use of the band.

Even if the Commission began to compile a more thorough record, all indications lead to the conclusion that non-coordinated sharing should not be adopted for the NGSO FSS Priority Bands, for two reasons. First, it is doubtful whether more than two systems can operate co-frequency using non-coordinated orbits, and it is by no means clear that even two are possible.

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[13] *Third Report and Order*, at ¶ 35.

[14] CPM-97 Report, *supra* note 7, at ¶ 4.4.1.1.1.

By contrast, use of coordinated orbits would allow "several" NGSO FSS systems to share these bands without relying on satellite diversity.[15] Endorsement of non-coordinated orbits is therefore tantamount to a decision to *limit* future entry, contrary to the Commission's articulated policy.[16] The Commission should be very reluctant to trade away the prospect of "several" competing systems with coordinated orbits in order to get at most two using non-coordinated orbits.

Second, a system that refuses to coordinate its orbits with those of the already-licensed NGSO FSS system can more easily operate in a band where no other NGSO FSS systems are yet authorized. Indeed, WRC-97 — at the behest of certain proponents of non-coordinated-orbit NGSO FSS systems — recently adopted provisional power limits that were designed with GSO/NGSO sharing in mind. As a result, the NGSO FSS Priority Bands are now the only FSS bands in which NGSO FSS systems do not bear the burden of protecting GSO FSS systems. The Commission should therefore carefully consider the potential benefits of reserving these bands for systems that are willing to use coordinated orbits.

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[15] Even for coordinated orbits, sharing conditions still depend on other network parameters (*e.g.*, orbital parameters, power levels, and antenna patterns).

[16] In addition, use of non-coordinated orbits makes it difficult for the non-coordinated system to achieve anything like the capacity and availability of the already-licensed Teledesic Network. Thus, even if the choice is between one additional system with coordinated orbits and one additional system with non-coordinated orbits, the public may receive more and better NGSO FSS service in more places if the Commission requires use of coordinated orbits.

In sum, sharing using coordinated orbits has been shown to be feasible; sharing using non-coordinated orbits has not. The Commission should therefore clarify that it did not intend to imply that use of non-coordinated orbits would be acceptable in any particular case — or, in the alternative, reconsider the language creating that implication.

II
THE COMMISSION SHOULD CLARIFY THAT IT WILL NOT SUBDIVIDE THE NGSO FSS PRIORITY BANDS TO ACCOMMODATE USE OF NON-COORDINATED ORBITS.

The *Third Report and Order* also states that "further division of the [NGSO FSS Priority Bands], which would result in a reduction of each system's capacity, is also a feasible alternative if sharing proves to be unacceptable to any particular NGSO FSS system."[17] This statement is also open to misinterpretation, and should be clarified or reconsidered.

Clarification is necessary for two reasons. First, there is no evidence that an NGSO FSS system will be economically feasible with less than 500 MHz. Indeed, the Commission has recognized that "500 MHz of spectrum is the minimum amount necessary to implement a viable system offering NGSO/FSS services."[18] Second, the Commission's rationale for considering

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17 *Third Report and Order,* at ¶ 37.

18 Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services and Suite 12 Group Petition for Pioneer's Preference, 11 F.C.C. Rcd. 53, 106, ¶ 145 (1995). The Commission further concluded that "[f]or NGSO/FSS systems, a mutually exclusive situation will arise if all qualified applicants are unable to share the spectrum. If mutually exclusive applications are received, we propose to use competitive bidding to award a single license." *Id.*

further subdivision of the NGSO FSS Priority Bands to promote multiple entry is unclear, since the technical studies included in the record conclude that co-frequency operation by "several" NGSO FSS systems using coordinated orbits "appears to be feasible." Finally, the Commission's reference to whether a sharing proposal is "unacceptable to any particular NGSO FSS system" suggests that a single applicant can essentially force the Commission to subdivide the NGSO FSS Priority Bands by simply choosing a system design that will not protect other operators from harmful interference. Suppose, for example, that an applicant insisted on using non-coordinated orbits even though it could not adequately demonstrate that co-frequency operation was possible with the chosen design. The system(s) that would suffer harmful interference from this approach would rightly deem it to be "unacceptable," but the proponent might unreasonably persist. In this situation, it would be perverse to reward the applicant choosing the infeasible technology by reducing the spectrum available to all the operators using the feasible technology.[19] The Commission should prevent such a stand-off by clarifying that since there is at least one sharing method that works — use of coordinated orbits — it will not be necessary to divide the spectrum.

If, however, the Commission really intended to give each later applicant a unilateral right to insist on further division of the NGSO FSS Priority Bands, then it should reconsider. A decision to assign less than 500 MHz to NGSO FSS licensees would require much more

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[19] This result would be particularly perverse from a competitive standpoint if, for example, the applicant choosing the infeasible technology also sought to use spectrum in other bands, and would therefore be relatively unaffected by the reduction in spectrum available in the NGSO FSS Priority Bands.

explanation and reliance on a factual record than the Commission has provided. The Commission is permitted to change its mind, but it cannot do so in silence.[20] In order to support any decision to divide the spectrum, the Commission must point to evidence in the record on the costs and benefits of this action, articulate why it has been convinced that it was previously mistaken, and connect its conclusions to the public convenience, interest or necessity.[21]

The record contains no evidence demonstrating that NGSO FSS systems can operate effectively with less than a 500 MHz assignment. A system offering broadband services without sufficient spectrum is limited not only in its capacity to serve multiple users, but also in its ability to provide adequate services to each individual user. If the maximum downlink channel rate is constrained by inadequate spectrum, the ability of an NGSO FSS service to accommodate advanced network connections, particularly asymmetrical communications, will be correspondingly limited.[22]

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[20] *AT&T v. FCC*, 974 F.2d 1351 (D.C. Cir. 1992) (changes in policy must be adequately explained).

[21] When "contradictions within and among Commission decisions are passed over in silence[,] [t]he impression created is of unprincipled compromises of Rube Goldberg complexity among contending interest groups viewed merely as clamoring suppliants who have somehow to be conciliated." *Schurz Communications,* 982 F.2d at 1050.

[22] This will be particularly important in light of the promise these systems hold for universal service. One of the special attributes of NGSO FSS systems is their ability to provide truly global coverage of uniformly high quality. But precisely because NGSO FSS systems are likely to be the only source of real-time broadband service for many people in rural or less developed regions, assigning an inadequate amount of spectrum will reduce the maximum data rate available within these regions. Indeed, if the constraints imposed are severe enough to threaten the viability of even a single NGSO FSS system, then these regions will receive no such service.

Granting NGSO FSS systems less than 500 MHz will also have unfortunate anticompetitive effects. Since the Commission first concluded that 500 MHz was the appropriate amount, two NGSO FSS applications have been filed, and each asked for 1000 MHz in each direction.[23] NGSO FSS systems in the NGSO FSS Priority Bands must also compete with thirteen recently licensed GSO FSS systems for customers, and these systems also have access to up to 1000 MHz in each direction. Because any reduction in the spectrum assigned to a system raises the cost per unit of communication,[24] it is difficult to see how NGSO FSS systems with less than 500 MHz of spectrum could compete with both GSO and NGSO operators using from 750 MHz to over 4000 MHz of broadband spectrum.

The Commission must also consider the effects of international coordination. GSO FSS systems in the Ka band have use of 500 MHz in each direction — at 29.5-30.0 GHz and 19.7-20.2 GHz — which is "clean," *i.e.,* free of any terrestrial fixed services. In addition, GSO FSS systems have the ability to coordinate use of up to an additional 500 MHz in the rest of the Ka band. By contrast, NGSO FSS systems have the same spectrum needs as GSO FSS systems but have no clean spectrum ,with respect to terrestrial fixed services, and a much smaller part of the band in which to coordinate. Within the 500 MHz in each direction designated for NGSO FSS,

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[23] Application of Skybridge, LLC for Authority to Launch and Operate the Skybridge System, FCC File No. 48-SAT-P/LA-97(64) (filed Feb. 28, 1997); Application of Motorola Global Communications, Inc. for Authority to Construct, Launch, and Operate the Celestri Multimedia LEO System, FCC File No. 79-SAT-P/LA-97 (filed June 13, 1997).

[24] Efficiencies result from the broader assignment. For example, an x% increase in spectrum increases the spacecraft payload and launch costs by much less than x%, ultimately resulting in lower costs per unit of communication.

satellite operators will need to coordinate with various incompatible uses. These coordinations will inevitably make some frequencies unavailable to a given NGSO system in certain parts of the world, and the frequencies that are unavailable are likely to be different from country to country. It is possible for an NGSO architecture to give system operators the flexibility to accommodate a broad range of decisions that sovereign nations might make in this respect, but only if there is enough total spectrum available to give both governments and system operators economically viable alternatives. The full 500 MHz is therefore essential in order to provide coordination flexibility for NGSO FSS systems.

To the extent that the language in question was intended to send a message to the existing NGSO FSS licensee and/or the present and future NGSO FSS applicants about the need for good-faith efforts to maximize the benefit the public receives from use of these frequencies, Teledesic acknowledges the Commission's good intentions and assures the Commission that it will make every effort to accommodate later entrants who are capable of sharing the spectrum. The Commission cannot, however, mean that a future applicant may use whatever design it chooses, regardless of whether it protects Teledesic from interference, and that Teledesic must accept the harmful interference or face further division of its spectrum. The Commission should make this point crystal clear to deter anticompetitive conduct by second-round applicants.

III
REQUIRING LICENSEES TO SIGNIFICANTLY ALTER THEIR SYSTEMS TO ACCOMMODATE LATER APPLICANTS WOULD BE CONTRARY TO EXISTING LAW AND SOUND POLICY

The final point on which clarification is needed is the relationship between licensees and applicants in future NGSO FSS processing rounds. In the *Third Report and Order*, the Commission stated the following:

> [W]e expect all non-Government NGSO FSS systems to be responsible for some portion of the burden-sharing. Specifically, we expect all NGSO FSS licensees to bear some portion of the technical and operational constraints necessary to accommodate multiple 'non-homogeneous' NGSO FSS systems. In apportioning burden, it may be appropriate to consider factors such as whether a particular NGSO FSS satellite is already in-orbit and operational.[25]

These statements about the obligations of "systems" have created some confusion by failing to distinguish between licensed operators and mere applicants. By indicating that the responsibility for avoiding harmful interference, though shared by all, falls first and foremost on new applicants, the Commission could clear up much of the confusion. All licenses are subject to regulatory modification if the public interest so requires,[26] but legal precedent and sound policy dictate that licensees should not be forced to *significantly alter* their systems or services to accommodate applicants in a later processing round that takes place years later.

It is difficult to believe that the Commission intended to suggest otherwise. FCC licenses have meaning; indeed, they are reputed throughout the world to be among the most stable

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[25] *Third Report and Order*, at ¶ 38.

[26] *See* 47 U.S.C. § 316.

licenses issued by any regulatory body in the industry, in large part because of the Commission's successful efforts to protect its licensees from interfering stations. From the day it began regulating the airwaves, the FCC has granted its licensees the authority to operate within the scope of their authorizations without the threat of interference from other operators.[27] The early days of broadcast regulation raised numerous interference problems, and in resolving these cases the Commission established a principle to which it still adheres: The responsibility for avoiding interference rests with the party proposing the new service.[28]

The rules have been no different for satellite operators. Relying upon the technical and temporal scope of their authorizations, satellite licensees and their investors spend enormous sums of money designing systems, building them, and placing them in operation. If these licenses were fleeting — if the technical parameters of an authorization could be arbitrarily revised to accommodate a new entrant who had not first discharged its own obligation to avoid harmful interference — it is extremely doubtful that anything like the current U.S. satellite industry could exist. This is particularly true of NGSO FSS systems. Even before launch,

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[27] *See National Broadcasting Co. v. United States*, 319 U.S. 190, 212-213 (1943); today, 47 U.S.C. § 303(f) charges the Commission with the prevention of harmful interference.

[28] *Midnight Sun Broadcasting Co.*, 11 F.C.C. 1119 (1947); *Sudbrink Broadcasting of Georgia, Inc.* 65 F.C.C.2d 691, 692 (1977) ("It is clear that the 'newcomer' is responsible, financially and otherwise, for taking whatever steps may be necessary to eliminate objectionable interference.").

developing and constructing these systems costs literally billions and takes years of planning.[29] For financial, operational, and political reasons, large multinational partnerships are required before a system can be placed in operation, and these partnerships and investment decisions are made years in advance of deployment on the basis of the license that is granted. Unless the regulatory environment — and the license — is reasonably stable, it would make little sense to invest the time and capital required.

Presumably, the Commission does not intend to depart from sixty-five years of licensing policy by requiring licensees to redesign their systems whenever a new application is filed. If that presumption is correct, the Commission should promptly clarify that NGSO FSS licensees, like all other FCC licensees, are protected from harmful interference from later-authorized stations.[30]

In the unlikely event, however, that the Commission intends to treat licensed operations as no more entitled to protection than new system proposals, the Commission must promptly reconsider, for such a result violates settled domestic law as well as the Treaty obligations of the United States. Treating licensees and applicants as equals for these purposes contradicts

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[29] The licensing process routinely takes more than a year. These delays last even longer for the first licensee in a new service such as NGSO FSS. In Teledesic's case, for example, initial licensing took three years and the first launch is still three to four years away.

[30] Even as it proposes these clarifications, Teledesic affirms its responsibilities as a licensee in an evolving service. Licensees should be required to share information with new entrants and even make minor system adjustments to accommodate them, provided the later entrants have discharged their obligation of avoiding harmful interference.

unbroken Commission precedent in the domestic sphere. Just recently in the *DISCO II Report and Order,* the Commission reiterated its basic approach: Applicants, be they foreign or domestic, may not force licensees to "significantly alter" their systems.[31] This approach has been the norm across all satellite services. For example, applicants in the 1.6/2.4 GHz Mobile Satellite Service ("Big LEO Service") have been required to demonstrate that their proposals "will not cause unacceptable interference to other authorized users of the spectrum."[32] Moreover, as the very concept of a processing group implies, applicants in a first processing group "are insulated from any mutual exclusivity that may arise" due to applications in later processing groups.[33] For example, the Big LEO rules properly grant licensees priority over mere applicants for purposes of interference coordination. If this were not the case, then nothing would prevent Teledesic or any other applicant from filing an application for a new TDMA Big LEO system now and requesting that Motorola give up some of the spectrum currently licensed for the exclusive use of its Iridium system, or otherwise alter its design to accommodate the latecomer. Surely the *Third Report and Order* offers no principled basis for according a first-round licensee in the Big LEO service more protection from interference than a first-round NGSO FSS licensee in the Ka band.

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[31] Amendment of the Commission's Regulatory Policies to Allow Non-U.S.-Licensed Space Stations to Provide Domestic and International Satellite Service in the United States, FCC 97-399 (rel. Nov. 26, 1997) ("*DISCO II Report and Order*"), at ¶ 150.

[32] 47 C.F.R. § 143(b)((2)(iv).

[33] Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Mobile Satellite Service in the 1610-1626.5/2483.5-2500 MHz Frequency Band, 11 F.C.C. Rcd. 12861, 12874, at ¶ 36 (1996)

The Commission's approach to promoting multiple entry and competition in the Little LEO service also illustrates the usual distinction drawn between licensees and applicants. In 1995, the Commission issued licenses to three first-round Little LEO applicants. Before it realized that extra spectrum would become available,[34] the Commission devised a plan to promote multiple entry that would have barred first-round licensees from entering the second processing round.[35] However, in its effort to promote competition, the Commission only proposed to limit the first-round licensees' access to *new* spectrum. It did not suggest that they be forced to significantly alter their systems to accommodate the second-round applicants. Although the Commission expects Little LEO licensees to use their best efforts to *coordinate* with new entrants, the burden of designing a system that is capable of sharing with already-licensed operations falls first and foremost on the later applicants.[36]

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[34] Amendment of Part 25 of the Commission's Rules to Establish Rules and Policies Pertaining to the Second Processing Round of the Non-voice, Non-Geostationary Mobile Satellite Service, *Report and Order,* FCC 97-370, at ¶ 10 (rel. October 15, 1997).

[35] Amendment of Part 25 of the Commission's Rules to Establish Rules and Policies Pertaining to the Second Processing Round of the Non-voice, Non-Geostationary Mobile Satellite Service, *Notice of Proposed Rulemaking*, FCC 96-426 (rel. October 29, 1996).

[36] *See* 47 C.F.R. § 25.142(b)(3) (Little LEO licensees shall at the Commission's direction attempt to coordinate with new entrants, except that they are not obligated to suggest changes to or re-engineer an applicant's proposal). *See also Orbital Communications Corp.*, 9 F.C.C. Rcd. 6476, 6477 (1994) (noting that the Joint Sharing Proposal accommodating all first-round applicants did not prevent later applicants from *engineering around* the earlier licensed systems); 47 C.F.R. § 2.104(d)(4)(iii) (emphasis added) (licensee in a secondary service is protected from harmful interference from other secondary stations "to which frequencies may be assigned at a later date").

In addition to this well-settled domestic policy of first come, first served, the Commission's obligations under the General Agreement on Trade in Services ("GATS") and the recent commitments of the United States regarding basic telecommunications services mandate that the Commission distinguish licensees from applicants. When a request from a foreign licensee to use U.S. spectrum resources would pose "debilitating interference problems or where the only technical solution would require U.S.-licensed systems to *significantly alter* their operations[,]" the Commission recently stated that it would "impose technical constraints on the foreign system's operations in the United States or, in cases where any such measures would be insufficient to remedy the technical problem, *deny the request.*"[37] Thus, the Commission will not force U.S. licensees to significantly alter their operations to accommodate non-U.S. applicants. Given this fact, if the Commission were to force a U.S. licensee to "significantly alter" its operations to accommodate a *U.S. applicant,* it would be according more favorable treatment to U.S. *applicants* than to applicants from foreign countries. This, the Commission cannot do. Article XVII of GATS requires that the United States accord "services and service suppliers of any other Member . . .treatment no less favorable than that it accords to its own like services and service suppliers."[38] U.S. applicants cannot be treated more favorably than those from other WTO Members.

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[37] *DISCO II Report and Order,* ¶ 150 (emphasis added).

[38] Uruguay Round of Multilateral Trade Negotiations: General Agreement on Trade in Services, Article XVII; *see also* Agreement on Basic Telecommunications Services, Article 6 ("Any procedures for the allocation and use of scarce resources, including frequencies, . . . will be carried out in [a] . . . non-discriminatory manner.").